Notice of Allowability	Application No.	Applicant(s)
	09/846,508	GU, QUNSHAN
	Examiner	Art Unit
	Melur Ramakrishnaiah	2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to <u>10-23-2006</u>.

2. ☒ The allowed claim(s) is/are <u>1-6,12-15 and 21-26</u>.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some*   c)☐ None   of the:

       1. ☐ Certified copies of the priority documents have been received.

       2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

       3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a)☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

       1)☐ hereto or 2)☐ to Paper No./Mail Date _____ .

    (b)☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☐ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

Melur Ramakrish

MELUR RAMAKRISHNAIAH
PRIMARY EXAMINER

Allowable Subject Matter

1.   The following is an examiner's statement of reasons for allowance: the present

invention provides a system for reducing artifacts associated with multi threaded video

coding.

The prior art of record in combination or alone fails to teach ot suggest these

elements of independent claims 1, 12, 21 and 22. For example independent claim 1

has claim limitations such as receiving a video signal, the video signal including two or

more threads, each thread including a plurality of frames of video data corresponding to

a periodic interval of the video signal, and each thread including a motion vector for

each one of the plurality frames that relates current image data to previously received

reference image data, calculating a motion vector for a virtual thread of video data

based upon one or more motion vectors from one or more threads, generating an

estimated frame of the virtual thread by applying the motion vector for the virtual thread

to a previous frame of the virtual thread, and providing the estimated frame of the virtual

thread and earlier frame of one of the two or more threads of the video signal to a filter,

the filter providing as an output a new frame of the virtual thread. Independent claim 12

has claim limitations such as receiving a first block of pixels, the first block of pixels

being from a multi-threaded video signal and corresponding to a region of an image,

receiving a second block of pixels, the second block of pixels corresponding to

estimated values for the region of the image, and applying the first block of pixels and

the second block of pixels to a filter, the filter presenting a third block of pixels according

to a weight, the weight determining a contribution of a pixel of the first block of signals

and a pixel of the second block of pixels to a corresponding pixel of the third block of pixels, and the weight selected so that error function for third block of pixels is below an error limit. Independent claim 21 has claim limitations such as computer executable code for receiving a first block of pixels, the first block of pixels being from a multi-threaded video signal and corresponding to a region of an image, computer executable code for receiving a second block pf pixels, the second block of pixels corresponding to estimated values for the region of the image, and computer executable code for filtering the first block of pixels and the second block of pixels by applying the first block of pixels and the second block of pixels to a filter, the filter generating a third block of signals according to a weight, the weight determining a contribution of a pixel of the first block of pixels and a pixel of the second block of pixels to a corresponding pixel of the third block of pixels, and the weight selected so that an error function for the third block of pixels is below an error limit. Independent claim 22 has claim limitations such as a decoder that decodes the multi-threaded video data into a plurality of threads of video, a processor programmed to: calculate motion vector for a virtual thread of video data based upon one or more motion vectors from one or more of the plurality of threads of video, and generate an estimated frame of the virtual thread of video data by applying the motion vector for the virtual thread of video data to a previous frame of virtual thread of video data, and a filter adapted to receive as inputs the estimated frame of the virtual thread of video data and earlier frame of one of the plurality of threads of video and output a new frame of the virtual thread of video data. For the above reasons Independent claims 1, 12, 21-22 and dependent claims 2-6, 13-15, 23-26 are allowable.
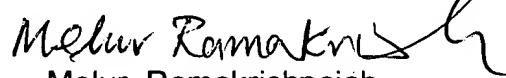
2.   Claims 1-6, 12-15, 21-26 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melur Ramakrishnaiah whose telephone number is (571)272-8098. The examiner can normally be reached on 9 Hr schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curt Kuntz can be reached on (571) 272-7499. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Melur Ramakrishnaiah
Primary Examiner
Art Unit 2614